

ASIS&T '09 Plenary Session I

Tim Bray Encourages Innovation

by Steve Hardin

Feature

Inventor, author, entrepreneur and open source supporter and developer Tim Bray encouraged several hundred people to go out and invent the next great things for the web. The Sun Microsystems Distinguished Engineer and director of web technologies made his remarks at the opening plenary session of the 2009 ASIS&T Annual Meeting. Bray based his talk on the “trivium,” the foundation of medieval education, which combines logic, rhetoric and grammar. His talk discussed each of these aspects in turn.

Bray considered logic first. Computer science people claim to represent the applied branch of logic and technology, he said. He highlighted *Ravelry* [1], an online community of knitters and crocheters. Users can talk with others, organize their projects and post pictures of their stashes. The site boasts as many as 3.6-million views per day, with 900 new users every day. This successful site features a rapidly growing, highly functional community. And it all came from a single developer, Casey Forbes, done with open source. He and his wife Jessica started designing the site in January 2007. There was immediate strong reaction to their site. They got a few users and listened to them and provided what they wanted. He quoted Casey: “I could talk for ages about how awesome and valuable the beta process was. We learned so much during the first year. I would do it all over again in a heartbeat – start with something that works, get people in it and build it together.” Bray noted there were no IT experts, architecture studies or similar resources. It’s important to understand the subject matter you want to communicate and understand what people want to do with it. He

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encouraged everyone in the session to “just do it.” He added, “If you have an idea, don’t launch a project planning process; just try doing it. You probably can.”

The Ravelry site is based on Ruby on Rails [2]. Ruby is a computer programming language from Japan. Bray said he would “unhesitatingly recommend” you purchase *Programming Ruby 1.9* [3] if you’re interested. Rails is a web framework designed to work with Ruby. It works on the DRY principle: “Don’t repeat yourself.” Every application lives in only one place. The idea is to get you up and running quickly. Bray also recommended *Agile Web Development with Rails* [4]. Both books will make you think you can create your own website on a particular topic, he said.

Other useful software includes Django [5], based on the Python software. There’s also PHP [6], the framework that proved to the world that a smart person can put up a website quickly without having to spend a lot of time on IT infrastructure. Drupal [7] is another open source content management system. WordPress [8] is the most popular blogging software. Other options include Facebook [9] and Wikipedia [10]. There are a lot of very good and interesting technologies around right now that will enable you to put something up without having to pay anyone or ask permissions. Just do it, Bray said.



Bray next considered the storage and retrieval of data. Consider the problems, he said, facing people using his Facebook page. There's data about him there. Database design orthodoxy requires a bunch of database tables, and it needs to be updated several hundred thousand times each second. That's impossible. Also, a lot of the data just doesn't fit well into the rows and columns of standard database thinking. So we're starting to see a large number of nonrelational data stores becoming available – most, if not all, open source. CouchDB [11] is a “slick piece of work,” based on Apache, Bray said. Also, Amazon SimpleDB [12], Cassandra [13], Tokyo Cabinet [14] and MongoDB [15] are useful.

Mobile technology is another game changer. Every year, about one billion mobile devices are shipped. A small but increasing percentage are small computers that can use the Internet and have MP3 players and many other applications. What's the impact? The iPhone, Palm Pre, Blackberry and Android all have a small share of the cell phone market. But they're a huge proportion of network revenue. Previously, phones weren't used much on the Internet; now they are. People in emerging markets are becoming able to use mobile phones for less than five dollars per month. Applications based on SMS (short message service) technology are letting them find out how to raise better crops and get other information they need. SMS may not be the best technology, he said, but it's changing people's lives. And the customer base is several times the population of North America. Projects may also help feed the hungry, educate the illiterate, and lift hundreds of millions out of poverty.

Next, Bray moved to the grammar leg of the trivium, focusing on text rather than speech or pictures. Bray said he's been getting static about how technology has been degrading reading standards. He doesn't buy that. He thinks technology has been helping literacy. The online culture is an epistolary culture – participants write as much as they read. He referred to a Clive Thompson article in September's *Wired* [16] that discussed how



current Stanford University students, thanks to texting, write more than any previous generation. He quoted from the article, “Before the Internet came along, most Americans never wrote anything, ever, that wasn't a school assignment.” Bray said, “We're in the golden age of writing. Sure, a lot of stuff being written isn't very good, but that's always been true. We need to consider what it means that the world is home to all these streams of text flowing back and forth all the time.”

Turning to the rhetoric leg of the trivium, Bray asked, “What is the Internet for? What is the killer app of the Internet?” The only answer for the past 20 years has been “the other people on the Internet.” Contacting and interacting with other people is the big thing. A high proportion of that contact is rhetoric.

So how do we communicate? For almost all our history, we had no computers. We got together and talked. Such an arrangement featured immensely high immediacy, as well as immensely low persistence. “Human memory is a very leaky vessel indeed.” The audience size was necessarily small. With the invention of the telephone, the dimension of distance was removed from the human ability to communicate. Immediacy was about the same, and persistence was about the same unless the call was recorded. Then email arrived. We quickly discovered it was essential. Its immediacy is much less than that of speaking. The audience is pretty high. It's practical for several hundred people to communicate with each other via email. Then came SMS – its immediacy is not quite as high, but better than email. Its persistence is low – users have to keep the messages, and most don't. The audience is only one. Then came instant messaging. Immediacy is very high. People get messages as soon as the user hits “Enter,” unless they ignore them. The audience is pretty small. Persistence is poor. Then came IRC – group chat. Persistence is good – it gets logged. The audience maxes out at a few hundred. A decade ago, we got blogging. Immediacy is terrible – no telling

when someone will read something. Persistence is very high, though – it’s on the web, therefore in Google, therefore available forever. The other side of it is feed-reading. Persistence is excellent; the audience is huge. The most recent new thing is Twitter – micro-blogging. The flaw, Bray said, is that it’s owned by a company. That’s not acceptable to him. We need to break it out into an open platform so that multiple parties can play, he said. People are working on it. Twitter still doesn’t have a business model, but a lot of people are addicted to it. The immediacy is high; persistence not as good as blogs. The audience is large.

So, Bray said, we observe a pattern that when new modes of communication come over the horizon, we discover we always needed them. Have we invented all the ones we need? Are there others waiting to be discovered? When they are, we’ll find we need them, too. He notes that even with presence of video, communication seems to be becoming more textual.

“Where are the next spaces to be found?” Bray asked his audience. “Why don’t you go invent them? Why don’t you help us all communicate with each other, because that’s the only thing the Internet is for,” he concluded. ■

Resources Mentioned in the Article

- [1] *Ravelry*: www.ravelry.com
- [2] *Ruby on Rails*: <http://rubyonrails.org/>
- [3] Ruby, S., Thomas, D., & Hansson, D.H. (2008). *Agile Web Development with Rails*. (3rd ed.). Raleigh, NC: The Pragmatic Programmers.
- [4] Thomas, D., Fowler, C., & Hunt, A. (2009). *Programming Ruby 1.9: The Pragmatic Programmers' guide*. Raleigh, NC: The Pragmatic Programmers.
- [5] *Django*: www.djangoproject.com/
- [6] *PHP*: <http://php.net/index.php>
- [7] *Drupal*: <http://drupal.org/>
- [8] *WordPress*: <http://wordpress.org/>
- [9] *Facebook*: www.facebook.com
- [10] *Wikipedia*: www.wikipedia.org
- [11] *CouchDB*: <http://couchdb.apache.org/>
- [12] *Amazon SimpleDB*: <http://aws.amazon.com/simpledb/>
- [13] *Cassandra*: <http://incubator.apache.org/cassandra/>
- [14] *Tokyo Cabinet*: <http://sourceforge.net/projects/tokyocabinet/>
- [15] *MongoDB*: www.mongodb.org/
- [16] Thompson, C. (2009, September). Clive Thompson on the new literacy. *Wired Magazine*, 17.09. Retrieved December 15, 2009, from www.wired.com/techbiz/people/magazine/17.09/st_thompson.